consisting of the first region and a second semiconductor island consisting of the second region,

wherein a concentration of said nickel in said first region is 1×10^{19} atoms/cm^3 or lower and higher than that in said second region.

REMARKS

The Advisory Action of February 18, 2000 was received and carefully reviewed. Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below. Claims 5-12, 16, 19, and 26-66 are currently pending in the instant application, with claims 49-66 currently withdrawn from consideration.

By the foregoing amendments, claims 27, 31, 33, 42, 45 and 47 have been amended to further recite patterning the semiconductor film to form a first semiconductor island consisting of the first region and a second semiconductor island consisting of the second region. Accordingly, Applicants respectfully request reconsideration of the rejected claims as discussed below.

Claims 5-12, 16, 19 and 26-48 are rejected under 35 U.S.C. §103(a) as being unpatentable over Oka (JP '915) in view of Liu et al. (U.S. '826) and further in view of Kuznetsov (Inst. Phys. Conf.) And Kumomi (U.S. '661). Also, on page 4 of the Official Action, claims 9 and 10 are rejected as being unpatentable over Oka in view of Liu et al. and further in view of Kuznetsov and Kumomi as applied to claims 5-12, 16, 19 and 26-48, further in view of Yonehara (U.S. '093) or Shibata (U.S. '224 or JP '224). These grounds of rejection are respectfully traversed for the reasons provided below.

Turning to the rejection, the Official Action states that the claimed Ni concentration (less than $1x10^{19}$ atoms/cm^3) is an obvious range in view of the teachings of Oka. Oka teaches a method to obtain catalytic action without inducing abnormal metal diffusion. Although, Oka discloses eliminating a metal layer in order to induce the abnormal diffusion of the metal into the amorphous silicon, the meanings of abnormal diffusion and

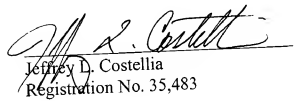
the influence of the diffusion on the characteristics of the semiconductor device are not clear. On the other hand, exemplary embodiments of the present invention are directed to controlling a nickel adding amount and an adding portion in order to form a thin film having a crystallinity of desired crystal configuration at a desired portion. More specifically, the present invention clearly teaches the critical nature of nickel concentration that when the concentration is more than $5x10^{19}$ atoms/cm^3, NiSi is locally produced and causes a loss of the semiconductor characteristics. Also, while Oka appears to suggest the result of utilizing excess metal (the abnormal diffusion), the present invention recognizes the case of insufficiency of the metal that when the nickel concentration is less than $1x10^{15}$atoms/cm^3, the action as a catalyst for the crystallization decreases. Thus, Applicants respectfully submit that the present invention clearly teaches the criticality of the concentration of the metal in view of the catalytic effect and the characteristics of the semiconductor device. Therefore, Applicants submit that Oka does not teach suggest the claimed range.

Also, the Advisory Action asserts that Liu et al. disclose forming driver TFT's by using polycrystalline semiconductor film crystallized by the metal diffusion and pixel TFTs by using non-crystallized semiconductor film. However, Liu et al. does not teach or suggest the criticality of the concentration and the influence of the metal on the characteristics of the semiconductor device.

For all of the above reasons, claims 5-12, 16, 19 and 26-48 are believed to be in condition for allowance and favorable reconsideration of the outstanding rejections and

examination of the new claims is respectfully requested. If the Examiner feels that any further discussions about this case would be beneficial, she is invited to contact the undersigned.

Respectfully submitted,



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